February 5, 1987

GUIDELINES FOR WASTE CHARACTERIZATION FORMS (WCF)

PURPOSE:

1. Provides the Contractor the information it needs to:

   a) Determine whether it can accept the waste.

   b) Determine how it will handle and dispose of it.

   c) Price disposal without making worst case assumptions.

   d) Apply for and receive any necessary disposal permits from state agencies.

2. Protect Union Carbide from anything that might be construed as negligence in disclosure.

RESPONSIBILITY:

The Requestor is responsible for completing the WCF and forwarding to the Corporate Purchasing Agent designated to handle waste disposal contracts (PA). The Division or Component Environmental Coordinator or his designated representative (EC) is responsible for reviewing the WCF and assuring its completeness and technical accuracy. NO WCF SHOULD BE MORE THAN TWO (2) YEARS OLD.

I. IDENTIFICATION

Location - Enter the name of the plant, warehouse, etc. The name of the city/state is not needed.

EPA I.D. # - Enter the site's generator I.D. # assigned by EPA per RCRA regulations.

Generator's Code - Since not all contractors use codes to identify waste streams, each plant should develop their own coding system and enter the assigned code for each waste in the space provided. This avoids confusion when descriptions are revised and when multiple contractors are used. Codes should contain as few characters as possible to simplify their use, e.g. WXXX - ddd (where W designates this as a waste code, XXX are the three numbers of the plant location number, and ddd represent three digits of a number) will ensure that two plants do not use the same code. Do not enter product or raw material codes in this space.

Contractor's Code - LEAVE BLANK (to be filled in by Purchasing)

EPA Codes - Enter all applicable EPA hazard codes as defined in RCRA regulations. If the waste is nonhazardous, then "none" must be entered in this space. WCF's with no entry in the "EPA Code" category will likely be rejected by disposal contractors and state agencies.

State Code - Some states, such as Texas, assign codes. Where applicable and known, they should be entered here.

II. NAME OF WASTE

This should be as short but as descriptive as possible. Lengthy detailed descriptions are not appropriate - such information is to be provided using other parts of the WCF.

For Example:

Improper - "A variable mixture of Perchloroethylene with minor amounts of carbon tetrachloride, xylene and toluene which all contain dissolved pigments"

Proper - "Perchloroethylene containing Pigments"

Other Tips:

- Avoid trademark abuses.

  Improper - "Temik ^{R} Waste"
  Proper - "Aldicarb Waste"

- Avoid names that describe plant operations rather than proper chemical name.

  Improper - "Waste from HF Reactor Cleanout"
  Proper - "Calcium Fluoride Waste"

Process Generating Waste - Reference to the process is desirable as a double check on the appropriate EPA Waste Code; however, care should be exercised such that proprietary information is not unncessarily divulged.

III. COMPOSITION

A. Major Components

- List the major constituents known to be present individually in fractions of 3% or more. Use additional WCF's or attachments if necessary. Try to list in order of descending percentages.

- Constituents known to be present or possibly present, but that individually represent less than 3% of the waste can be grouped together and named appropriately (e.g. "Other low-boiling (B.P. 130^{o}F) components"); this name should be footnoted to provide the list of constituents it includes either at the bottom of the WCF or on an attachment.

o All components listed must be chemically descriptive.

Improper - Agent P-1010
Proper - Polypropylene Glycol

Improper - Boilout Solution
Proper - Triethylene Glycol

Improper - Carbowax ®
Proper - Polyethylene Glycol

Exceptions:

If a constituent is proprietary, it should be listed by its trade name but a Material Safety Data Sheet should be attached.

If the list of chemical constituents is massive, but as a group is well described by a general name (e.g. "pigments"), the general name can be used but should be accompanied by examples of the major constituents (e.g. quinacridone, lead chromate, etc.). However, any metals, PCB's, carcinogens, listed RCRA wastes, and constituents which cause the entire waste to have a hazardous property should be listed specifically, as discussed below.

B. Trace Components Not Listed Above

For each metal and other element listed, declare the appropriate concentration (or concentration range) in ppm in the space provided. No space should be left blank - if an element is not present, enter a dash ("-"). If the element is already accounted for and identified in the "Major Components" Section, enter "see above". As previously stated, constituents which represent 3% or more of the waste should be entered in the "Major Components" Section. Note that for halogens, sulfur, nitrogen and phosphorous, only organically bound concentrations are to be entered.

Entries in this section may be based on knowledge of the waste in lieu of specific analyses so long as the information is correct. Use of comfortable ranges is encouraged, and weight % entries are acceptable in lieu of ppm if so noted. General entries such as "trace" are discouraged because contractors or permitting agencies may reject the description as incomplete.

C. One-Time or Typical Analyses

If an actual or typical (i.e. judgemental) analysis of the waste is known, it should be entered here. The entries must add to 100%, and typical analyses should be rounded out.

D. Concentration Range

- Concentration ranges should be shown in addition to typical analyses to avoid the contractor's over-reliance on a single composition and because single compositions might be construed to be "guaranteed" by Carbide.

- Specify upper and lower limits for each component listed under "Major Components".

- Make sure that the concentration ranges are logical. For example:

Major Components	Concentration Range %	
	Upper	Lower
A	100	80
B	100	80

If Component A can represent as much as 100% of the waste; then by definition, the lower limit for Component B is 0%, and should be shown as such.

Make sure that the composition ranges account for 100% of the waste:

Major Components	Concentration Range %	
	Upper	Lower
A	100	80
B	10	0

If Component A can represent as little as 80% of the waste, then the other components must represent up to 20%, yet Component B only accounts for 10%. Therefore, correction is necessary.

- Avoid using excessively wide concentration ranges. While it is important that the ranges be wide enough to cover the compositions the disposal contractor will see, it is equally important not to overstate the ranges. For example:

Major Components	Concentration Range %	
	Upper	Lower
Water	100	0
Methanol	100	0

Several things can happen when the WCF is submitted in this fashion:

(1) The State may refuse a permit based on doubt that the generator knows what the waste is.

(2) The disposal contractor may refuse the waste for the same reason.

(3) The disposal contractor may assume the most costly composition for its facility and quote prices accordingly.

To avoid this problem without excessive analytical work, it is suggested that wastes be segregated, as they are generated, for easier identification.

Specify the solution media and give some indication of their concentration:

Major Components	Concentration Range % Upper	Lower
Improper:		
Cobalt Acetate Solution	30	20
Proper:		
Cobalt Acetate	5	0
Water	25	20

E. Exposure Limits

List either the OSHA or ACGIH Threshold Limit Values (TLV's) if they are published, and circle the one used. Other toxicity measurements can also be substituted here as long as they are clearly described.

F. Does the Waste Contain:

Provide additional characterization data on sulfides, cyanides, PCB's, phenolics and insecticides, pesticides, herbicides or rodenticides. A yes or no response must be marked for each category.

G. Other

In addition to elements specifically listed in the above sections, presence of the following materials should be described in this space:

- OSHA carcinogens and substances classified by Union Carbide as having carcinogenic risk (enter concentrations if known). See "Special Cases" on page 9.
- Waste listed under RCRA by generic name or source (enter concentrations if known).
- PCB's. Indicate the specific date placed in storage. For liquids, documentation of PCB concentration must be attached. For capacitors, indicate the quantity in pounds of contained liquid per capacitor. See "Special Cases" on page 9.
- Any other constituent which causes the whole waste to have a hazardous property (enter concentration if known).

IV. PHYSICAL STATE 25°C.

- Circle the description that best applies (or list another) and answer the applicable question(s) shown.
- "% Free Flowing" refers to the volume (not weight) of liquid that is in the container and can be pumped or poured off to leave a non-flowing solid. If the waste has liquid and solid phases but the entire contents can be poured out, then "100%" should be entered here.
- If waste can be heated to improve flow, so indicate.

V. INCINERATION DATA

The requested characteristics must be completed if incineration is to be considered as a disposal method. For "BTU/lb.", enter the gross heating value; use as wide a range as necessary if not specifically known. Estimates are acceptable but should be so indicated, e.g. "est. 8000 BTU/lb." Special listed constituents (40 CFR 261 Appendix VIII) should be listed under Section X "Remarks".

VI. PROPERTIES

Circle all hazardous properties that apply to the entire waste and provide entries (even if "zero (0)" or "N/A") for all physical properties. A hazardous property of a specific component of the waste may not be applicable to the waste as a whole when the component is combined with the other components.

Example: A 3% solution of Acetone in water. The Acetone is "ignitable" but the solution is not.

- Flash Point: Must be entered if the waste is ignitable or combustible. Show in °F Closed Cup. Ranges (e.g. "over 300°F") are acceptable. If a flash point range is shown, express the range as being greater than ____ °F. Example: for a particular waste $>$ 140°F is okay but $<$ 200°F is not.
- Corrosive: The RCRA definition applies to waste with a ph $<$ 2 or $>$ 12.5. However, if the plant believes the material should be handled as a corrosive material even though not so defined under RCRA, or if the material is corrosive according to DOT standards, this property should be circled.
- OSHA-Carcinogen: Circle if the waste contains any material listed as an OSHA Carcinogen, except PCB's (see "Special Cases").
- pH: Show the pH or a pH range for the waste. An entry should always be made, particularly if "corrosive" is circled in the properties section. If pH is not applicable, enter "N/A", not "None".

- o Odor: Indicate whether the waste has an "environmentally significant" odor by circling "yes" or "no" and describe the odor in the space provided. To judge whether the odor is "environmentally significant" ask yourself whether visitors to a disposal site or nearby residence would notice the odor were the waste to be emptied into an open lagoon (even though you may know the waste is not handled in such a manner).

- o Color: Entries such as "clear", "white", "light orange", etc. are appropriate. Do not leave the space blank as disposal contractors often use color as one of their "fingerprint" tests when the waste arrives at the disposal location.

- o Criteria for establishing whether waste has other hazardous properties listed is the responsibility of the plant Environmental Protection department. For wastes determined to be "Toxic" or "Reactive" or "Other", further elaboration must be entered in the space provided. Examples:

TOXIC - Due to lead content
TOXIC - LD 50 in rats for Component XXX
TOXIC - D.O.T. Poison A
TOXIC - Union Carbide Experimental Carcinogen - See Attached
TOXIC - EP Toxic under RCRA due to presence of XXX
REACTIVE - Will polymerize and liberate heat
REACTIVE - Will explode in contact with water
REACTIVE - Peroxide
OTHER - DMAC is a Teratogen
OTHER - See attached Material Safety Data Sheet

If the space provided is not adequate to elaborate sufficiently, enter "See Below" and use the Remarks Section of the WCF, or enter "See Attached" and add the necessary attachments. Attachments such as Material Safety Data Sheets or their equivalent are necessary when properties of the chemical cannot be found in standard texts (e.g. a chemical dictionary) and can therefore only be provided by Union Carbide.

Bear in mind that the purpose of this section is to communicate waste properties and hazards which should be of concern to the contractor in handling the waste, not to designate how the waste is classified under RCRA or any other classification system. Therefore, if Union Carbide considers the waste toxic or reactive by any standards, even though not classified as such under RCRA, it should be indicated in this section with appropriate explanation.

A yes or no response is required if the material is pyrophoric (material ignites spontaneously e.g. when exposed to air or when rubbed or abraded), radioactive, shock sensitive, explosive, etiological (examples would be biological or infectious waste).

VII. D.O.T. SHIPPING NAME/HAZARD CLASSIFICATION AND UN/NA NUMBERS

This information is necessary for contractors who provide transportation so they can ensure their vehicles are appropriately placarded and take proper action in the event of a spill. Enter this information in the spaces provided. (Note that it is the shipper's responsibility to provide appropriate placards.) Contact your Division HAMTRAC Representative for assistance if necessary. If the waste is hazardous under EPA's RCRA regulations, the word "waste" must precede the otherwise applicable shipping name. If the material is not otherwise regulated by D.O.T., but is RCRA-hazardous, the proper shipping name is "Hazardous Waste - Solid (or Liquid), N.O.S.", and the D.O.T. Hazard Class is ORM-E.

VIII. SHIPPING CONTAINERS

For bulk materials, list volume per shipment and show the D.O.T. design specification (e.g. MC Code) or other bulk configuration (dump truck, roll-off container, etc.). It is insufficient to simply circle "bulk" without further elaboration. The contractor must be told enough to determine the type of vehicle required (including appropriate materials of construction, gasketing, etc.) and how the material will be loaded.

For drums, show size (55 gallon, 30 gallon, etc.), material of construction (steel, plastic-lined steel, fiber, plastic-lined fiber, plastic, etc.), and DOT specification. If waste will be packaged in more than one size or material of construction, the alternate packaging must be clearly specified (eg. 5 gallon pails palletized 8 per pallet). If overpacks (containment package in outside package) are used, they must be identified.

For drums and "other" shipping containers, please provide approximate weight per container and the DOT label required on each container.

IX. VOLUME

- Estimates of the immediate and annual waste volumes are essential for: 1) Purchasing to set priorities, establish contingency plans and get the best price, and 2) the contractor to plan its activities and avoid overbooking its facility.

- Drummed wastes should be expressed in terms of the number of drums on hand and per year; bulk wastes should be expressed either in pounds or gallons on hand and per year. Pounds are preferred because they are more accurately measured for invoice verification. If quantities are expressed in pounds, the contractor will usually quote prices on a per pound basis.

X. REMARKS

Refer to any appropriate additional information. These can be attached Material Safety Data Sheets for the waste or components of the waste, spill and handling information, OSHA standards, etc. Such attachments are highly desirable.

SPECIAL CASES:

- Substances Classified by Union Carbide as having Carcinogenic Risk - Indicate in the Hazards Section whether so classified, and attach a Material Safety Data Sheet or the equivalent.

- Capacitors Containing PCB's - The amount (lbs.) of liquids per capacitor should be identified on the WCF. Capacitors should be packaged in 55-gallon steel drums using vermiculite. Contact your HAMTRAC representative.

- PCB Liquids - For each pail, drum, or tank wagon, documentation of PCB concentration must be attached. This does not apply to PCB liquids in capacitors, light ballasts or absorbed on rags, paper or spill absorbent. Contact your HAMTRAC representative for information on proper containers.

- Lab Chemicals - Laboratory Chemicals in quantities less than five (5) gallons may be listed with their respective amounts on a separate piece of paper to be submitted in lieu of a WCF. This does not include scrap paints, car care products or other large scale industrial waste material that is packaged in small containers. It is imperative that chemically descriptive names be used in this listing as opposed to trade names or general categories, (e.g., "solvents").

- Radioactive Wastes - Waste radioactive sources and devices may be described on a separate piece of paper and submitted in lieu of a WCF. This description should include: 1) the isotope, 2) the source's weight and dimensions, 3) type of container, 4) millicuries or microcuries, millirems (reading on skin of package and three feet from skin of package), 5) proper DOT shipping name, and 6) special form versus normal form.

MISCELLANEOUS

- Problems in filling out WCF's should be discussed with Division or Departmental Environmental Coordinators.

- Type or print information - Use black ink or other colors that reproduce clearly. Avoid pencil and blue ink. Multiple copies have to be made of each WCF.

- If the waste contains any chemical for which the contractor will not have access to hazard or property information in standard texts (e.g. a chemical dictionary, etc.) then a Material Safety Data Sheet or the equivalent must be attached. In such cases circle "Other" in the Properties Section and indicate that there is an attachment.

- Review the form to make sure that the form is filled out completely and print the preparer's name at the bottom of the form.

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